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LOCAL VEGETATION COPIOUS SOURCE OF CHEMICALS, DRUGS; NEW PHARMACEUTICAL TECHNOLOGY

UNUSED RAW MATERIALS IN TADZHIKISTAN -- Stalinabad, Kommunist Tadzhikistana, 7 May 52

Many valuable substances and medical preparations can now be obtained from plant raw materials of which there are vast resources in Tadzhikistan. There are more than 4,500 botanical types of flora in Tadzhik SSR, which should be fully utilized.

Such resources are now poorly exploited. The Tadzhik leather industry is not supplied with its own tanning agents, or public health with its own medicinal tannin, although there are many types of raw materials which are sources of tannin, such as taran (polygonum alpinum), sumac, pistachio, march rosemary (Statice), etc. However, they are collected and used only by a few industrial artels.

Tadzhik SSR has huge quantities of pistachios which could serve as a rich source of high-quality medicinal tannin, as well as dye for carpet wool and silk. Earlier, the Moscow Pharmaceutical Plant imeni Dzerzhinskiy and the Tashkent Pharmaceutical Chemical Plant produced tannin from Central Asian raw materials. However, its production was discontinued because of the irregular supply of raw material. The fact is that the republic has no proper organization to look after its procurement.

Tadzhikistan has huge growths of walnut, which, apart from the food industry, could furnish supplementary industrial raw material. The pericarp of the nuts is used in tanning, and could be utilized for the production of dye. The unripe nuts are a fine source of vitamin C. Tadzhikistan could meet fully its own requirements in vitamins, producing them from plants. The manufacture of vitamins could be organized at any fruit canning plant in Tadzhik SSR, as has been done at the Dzhalal-abad Canning Plant in Kirgiz SSR, but this is not being done.

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The situation is no better as regards the utilization of wild plants producing fast-color dye for carpets, leather, and silk. Madder, sophora, isfarak /possibly named from Isfara, rayon center in Leninabadskaya Oblast/, moraceous fungus, wild hemp, pomegranate peel, and many other plants could be used for this purpose.

The essential oils industry in the republic is based mainly on cultivated plantation raw material. This does not meet the requirements of the perfume, soap, and food industries. The variety of types of essential oils could be expanded by using wild raw material. But very little essential oil is extracted even from juniper, which grows in great abundance, although juniper oil has medicinal (balsamic) properties.

The wormwoods which grow in the republic are not utilized although the essential oil of a local wormwood, according to research of the Chemical Institute of the Academy of Sciences Tadzhik SSR, contains many rare substances and has been recommended in its natural state for toilet water. Of interest also are local mints, terragon, and many other wild essential oil-bearing plants.

Little research is also being done on the vegetation of the republic in connection with the extraction of raw materials for drugs. Much help could be obtained from the age-old observations of the Tadzhik people in regard to medicinal plants, and from Tadzhik achievements in the field of medicine. The data could be critically selected and accepted by modern medical science. Attention should be paid to the procurement of Tadzhik adonis which, in its medicinal properties, has proved to be better than European types as a remedy for heart disease. Tadzhikistan has many types of wild grapes which are of interest for studying the possibilities of obtaining substances like strophanthus for cardiac ailments.

Republic chemists and botanists should turn their attention to alkaloid raw material. Of the little more than 300 alkaloids in the world, over 100 are available in plants to Soviet chemists, and these chiefly in Central Asian flora. Some of these have already become industrialized and have been used in combating agricultural pests (anabasine) or as drugs in medicine (ulexine, convolvine, lupimine, scopolamine, and ephedrine).

For a long time the people of Tadzhikistan have used for catching fish a mullein called margi mokhi, which signifies "death to fish." When crumbled into a water tank it has a soporific effect on the fish which float on the surface and are easily caught. It is clear that this rare plant should get into the hands of chemists, so that the content of chemical substances as yet unknown can be tested. If scientists are seriously interested in such rarities, the local population will point them out in large quantities.

The republic also affords opportunities for producing gum from cherry and apricot wood, and mastic resin from pistachio; soaproot from wild barberry; industrial and aromatic resin from resiniferous ferula; and many other types of economically valuable products from plant sources.

As for agricultural raw materials and the waste products from their industrial processing, many of these waste products with help from chemists and technologists, as well as certain organizational assistance, could easily become secondary industrial resources.

Guza-pai and cotton bolls are a valuable raw material for the hydrolysis industry. For example, the Fergana Hydrolysis Plant manufactures industrial alcohol, furfural, and lignin briquets from cotton bolls. From the same raw material it is entirely possible to produce wood sugar (xylose), cardboard sheeting, activated carbon, adhesive substances, and gas generator fuel in

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briquets for motor transport. From a ton of cotton bolls, 135 liters of alcohol and 2 percent furfural can be obtained. The hydrolytic alcohol is used in the production of synthetic rubber, and the furfural, in the synthesis of dozens of chemical compounds in the field of fine chemical technology.

The seeds of the cotton plant now yield two valuable products, oil and oil cake. However, they also contain a whole series of other chemical substances, as for example, a rare, scientifically valuable sugar, raffinose, a medicinal substance which contains phosphorus; and phytin, which is now obtained in the USSR from sunflower seeds, and in some places from rice hulls. A coloring matter, gossypol, which is contained in the kernel of the cottonseeds, is not now utilized.

Guayule cultivation is being developed on a large scale in the republic. In addition to its chief product, rubber, guayule contains just as much valuable resin, and a great deal of essential oil. These secondary products of guayule cultivation are now being studied at the Chemical Institute of the Academy of Sciences Tadzhik SSR. Already interesting data on their chemical composition has been obtained. Besides guayule, Eucommia /which contains guttapercha in its leaves/, will be cultivated in large areas in Tadzhikistan in the near future. Besides guttapercha, Eucommia contains in its bark medicinal substances such as drugs used in the treatment of hypertonia and diseases of the liver and kidneys. These plant resources should be utilized.

This discussion far from covers all the sources of plant raw material in Tadzhikistan from which various industrial products can be obtained. Scientific research in the field of plant raw material resources should be widely developed in the proper scientific institutes and laboratories of the Academy of Sciences Tadzhik SSR and the chairs of higher educational institutions in the republic. -- A. Shamshurin, Candidate of Chemical Sciences

TURKMEN SSR PRODUCES ANABASINE SULFATE FROM LOCAL PLANT -- Ashkhabad, Turkmenskaya Iskra, 17 May 52

Anabasine sulfate is being used to combat plant lice, thrips, and other suctorial insects. It is extracted from a plant of the goosefoot family known locally as "ul'druk." The leafless plant grows on the dry, salty steppes along the Volga, in Yuzhno-Kazakhstan, and in Kunya-Urgenchskiy and Leninskiy rayons, Turkmen SSR.

The growth of ul'druk in Turkmen SSR amounts to 85,000 hectares, almost 55,000 of which are very dense growths with a large store of raw material. Research has shown that the Tashauz ul'druk is of higher quality than that of Yuzhno-Kazakhstan.

Ul'druk is used in a dry powdered form for preparing anabasine sulfate. The plant is dried in the open air, after which the green mass is crushed with rollers or threshing machines and shipped to the processing enterprise. A tincture of the powdered and screened plant is made with heated water. It is then processed with kerosene and sulfuric acid, after which the kerosene is distilled off and the water evaporated.

Anabasine sulfate, a yellowish liquid which darkens in the air, has a characteristic odor. It is used in the following proportion to combat agricultural pests: one gram of anabasine sulfate, and either 2 grams of solid or 4 grams of liquid soap, to one liter of water. Anabasine sulfate is used not only for spraying plants but also for dusting. For this, a 4 percent "anabadust" is prepared by combining 96 parts of dry slaked lime or screened road dust with four parts of anabasine sulfate. For mixing, the drum

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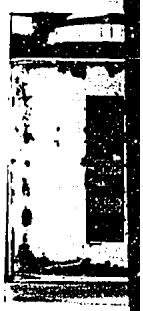

of an Ideal or Urozhay batch-type mordanting machine is loaded with lime or road dust to one third of its capacity, and the proper amount of anabasine sulfate is sprayed in from an Avtomaks sprayer. The drum of the mordanting machine is then rotated for 10-15 minutes, first in one direction, then in the other.

To avoid deterioration in quality, anabadust should be used the day it is prepared. Consumption is 30-60 kilograms per hectare.

Anabasine sulfate is a very scarce preparation. Because of the lack of an anabasine sulfate processing enterprise, it was produced locally from ul'druk by homemade methods and used on the kolkhozes of Tashauzskaya Oblast in 1951. From 1-1.5 kilograms were used per hectare. To judge its effectiveness, the process must be repeated in 1952.

SYNTHETIC PILOCARPINE -- Minsk, Sovetskaya Belorussiya, 8 May 52

For many years, foreign scientists worked without success on the problem of synthesizing pilocarpine, an important remedy for treating glaucoma. The task was finally solved by N. A. Preobrazhenskiy, Soviet scientist and professor at the Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, who did extensive research on the artificial production of natural medicinal substances. His research included a number of alkaloids, vitamins, and provitamins of the carotene type.

More than 20 years ago, Preobrazhenskiy began research on the synthesis of the alkaloid pilocarpine, simplifying his synthesis until it was technically practicable. No other country in the world has synthetic pilocarpine. Up to now, pilocarpine has been obtained only from tropical plants, in very small quantities and at great expense.

Preobrazhenskiy's work on the synthesis of other alkaloids and vitamins is of comparable significance. He was awarded a First Stalin Prize for his research on the synthesis of alkaloids published in scientific journals from 1949 - 1951. -- S. I. Chudnovskaya and V. L. Kostomarova, Associates, Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

STRIVE TO IMPROVE TECHNOLOGY OF DRUG PRODUCTION -- Riga, Sovetskaya Latviya, 19 Jul 52

Not content with the Stalin Prize for introducing a new method of producing the antituberculosis preparation, PASK, won by a group of plant personnel and scientists of the republic, engineers and workers of the Riga Pharmaceutical Plant, in close collaboration with scientists, are working on further improvement of the technology of producing medical preparations. -- G. Semenyuk, Director, Riga Pharmaceutical Plant, Stalin Prize Winner

PRODUCE CHOLESTERIN FROM SPINAL CORD OF CATTLE -- Moscow, Pravda, 27 Aug 52

The industrial production of cholesterin from the spinal cord of cattle has been achieved for the first time in the USSR at the Leningrad Meat Combine imeni S. M. Kirov. Cholesterin is a raw material for the production of valuable medical preparations used in the treatment of cardiac-vascular and other diseases. It is also a source of vitamin D.

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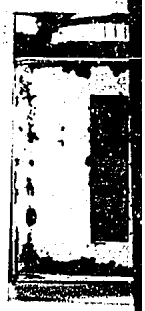

Organized in 1950, the cholesterin plant of the meat combine has been continuously improving the technology of production. Its productivity has doubled, and production costs have been reduced more than half. The producers have been considerably assisted by associates of the chemical laboratory of the All-Union Chemical Society attached to the Academy of Sciences USSR.

NEW STORAGE AREA FOR HERBS -- Moscow, Trud, 11 Jun 52

Workers of the Moscow Pharmaceutical Chemical Plant No 9 are supporting the drive initiated by economic and commercial services workers of the Moscow Salicyl Plant, Ministry of Health USSR, to economize in every economic operation. Packing materials are being reused and all materials are being saved.

The plant is planning a new, more serviceable storage area for herbs which heretofore have become excessively dry during the summer. Many such herbs are processed at the plant.

SHIPS DRUGS TO CANAL AREA -- Ashkhabad, Turkmenskaya Iskra, 18 Jul 52

The Pharmaceutical Administration, Ministry of Health Turkmen SSR, is shipping the newest medical preparations, vitamins, bandages, and other drugs to the Main Turkmen Canal area daily. One shipment was made by air to Tashauz on 10 July. This shipment consisted of penicillin, oxygen, gauze, cotton, etc. The administration is expecting the arrival of a carload of mineral water in the near future.

TB, SULFA DRUGS AVAILABLE IN LARGE QUANTITIES -- Frunze, Sovetskaya Kirgiziya, 23 Aug 52

For the information of managers of medical institutes, doctors, and the general population, it is announced that all drug stores and the Central Drug Warehouse have large quantities of the antituberculosis drugs, PASK and tibon /apparently tibione/; and antipyretics such as aspirin, pyramidon, etc.

Sulfanilamide preparations: white streptocide, sulfidin (sulfapyridine), norsulfazol (2-para-amino-benzene-sulfamido-thizol), etc.

Preparations chiefly for local use: disulfan (4-sulfanilil-anilide of sulfanilic acid), sodium sulfidin (sodium sulfapyridine), sultsimid (sulfanil-cyanamide), synthomycin, etc.

Medical instruments and apparatus: for general surgery, neuro-surgery, diagnostics, ophthalmology, obstetrics and gynecology, urology; laboratory equipment and reagents

Nursing equipment: hot water bottles, syringes, bedpans, etc.

Inquire at all drug and specialty stores of Glavaptekoupravleniye (Main Pharmaceutical Administration) Kirgiz SSR. -- Advertisement

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